

Claims:

1. A method for the generation of genetically diverse plants via the incorporation of exogenous micro-satellite (MS) sequences into the plant genome, wherein said plants are of the same species, and said method comprises the following steps:
 - (a) obtaining MS-like DNA fragments;
 - (b) introducing said DNA fragments into plant cells;
 - (c) selecting the plant cells containing said DNA fragments;
 - (d) cultivating the plants grown from the selected cells, under suitable conditions.
2. The method of claim 1, wherein said MS-like DNA fragment comprises a monotonous repeat of one to six nucleotides and is at least twelve nucleotides in length.
3. The method of claim 1, wherein said MS-like DNA fragment comprises a sequence that is at least 70% homologous to a monotonous repeat of one to six nucleotides and is at least twelve nucleotides in length.
4. The method of claims 2 and 3, wherein said repeat is any one of A/T, AT/TA, AG/CT, AAG/CTT, CGG/CCG, ATCG/CGAT, AAAT/ATTT, AAGTTC/GAACTT, CTG/CAG, TTTA/TAAA, CT/AG and TTC/GAA.
5. The method of claim 4, wherein said repeat is preferably any one of AAGTTC/GAACTT, CTG/CAG, TTTA/TAAA, CT/AG and TTC/GAA.
6. The method of any one of the preceding claims, wherein optionally the MS-like DNA fragments obtained in step (a) are ligated into suitable vectors and then proceed to step (b).

7. The method of any one of the previous claims, wherein the exogenous MS is preferably introduced concomitantly with a selective marker.
8. The method of claim 7, wherein the selective marker is a gene that confers resistance to an antibiotic, a herbicide or a metabolic inhibitor.
9. The method of claim 8, wherein the selective marker is preferably a kanamycin resistant gene.
10. The method of claims 1 to 9, wherein the synthetic MS-like DNA fragment further includes in tandem a unique identifiable sequence that enables specific tagging of the incorporated DNA.
11. The method of any one of claims 1 to 10, wherein the synthetic MS-like DNA fragment is introduced into individual plant cells.
12. The method of any one of claims 1 to 11, wherein said synthetic MS-like DNA fragment is introduced into any one of a plant embryo, a plant tissue or callus, or a leaf, which are then subsequently disintegrated into individual plant cells.
13. The method of any one of claims 11 or 12, wherein the individual cells are cultivated to give rise to individual plants.
14. The method of any one of claims 1 to 13, wherein said DNA fragment is introduced via any one of electroporation, chemical, mechanical means or liposomes.
15. The method of claim 14, wherein said DNA fragment is introduced via mechanical means, like particle bombardment.

16. The method of any one of claims 1 to 15, wherein said DNA fragment is introduced by a genetic vehicle such as a plasmid or a viral vector.
17. The method of any one of the previous claims, wherein said DNA fragment is obtained via synthesis or cloning.
18. The method of claim 17, wherein said DNA fragment is obtained via synthesis.
19. The method of any one of the preceding claims, wherein said exogenous DNA is produced by the ligation of several DNA pieces.
20. Use of MS-like DNA fragments as a tool for the generation of new plant varieties.
21. The use of claim 20, for the generation of any one of cells, seeds or progeny of said plants.
22. A plant variety produced by the method of any one of claims 1 to 19.
23. A plant variety whose genome has been modified by the method defined in any one of claims 1 to 19.
24. A new plant variety generated by the introduction of MS-like DNA fragments into its genome, and cells, seeds and progeny thereof.